1. (Amended) A jet engine [which produces a supersonic stream of air, said engine] comprising:

[a structure adapted to provide a compression ratio sufficient to produce a supersonic thrust;]

an air intake end [and an exhaust end] to intake air, the air being divided into at least first and second streams; and

[said exhaust end having a partition that divides said exhaust end into a first side and a second side such that a first stream exits said exhaust end on said first side and a second stream of heated air exits said exhaust end on said second side, and

a combustion chamber for heating adapted to heat said first stream such that said first stream is expelled from said exhaust end of said engine to produce said supersonic thrust, and]

a [heating] control mechanism [adapted to heat said second stream such that said second stream is expelled from said exhaust end of said jet engine to produce a subsonic thrust adjacent to said first thrust and thereby prevent Mach waves from said supersonic thrust] to control at least one of temperature and velocity of at least one of the first and second streams to control Mach wave formation from the first stream.

2. (Amended) The jet engine of claim [1] 26, wherein said first and second [stream] streams pass through said combustion chamber before said partition separates said first stream from said second stream[; after said separation, said heating mechanism designed to further heat said second stream].

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5. (Amended) The jet engine of claim [1] 27, wherein said heating mechanism is a suppression burner, said suppression burner being designed to heat the air by burning a fuel.

6. (Amended) The jet engine of claim [1] 27, wherein said heating mechanism is a variable compression ratio fan [which can change its] having a variable compression ratio [and produce heat].

7. (Amended) The jet engine of claim [1] 25, wherein said partition is an inner shell core of a jet engine.

8. (Amended) The jet engine of claim [1] 25, wherein said partition further has louvers or apertures which can be opened to allow mixing of said first and said second [stream] streams.

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9. (Amended) The jet engine of claim 1, wherein said [jet engine] first stream is at least partially surrounded by a shroud, said shroud forming a confining wall for said second stream.

10. (Amended) The jet engine of claim 1, wherein said [heating] control mechanism [is] comprises a divider which diverts said first stream to entirely form or to mix with said second stream.

11. (Amended) The jet engine of claim 1, wherein said [jet engine has a second divider which further divides said second stream from a third stream; and

a heating mechanism adapted to heat said third stream to a temperature different from that of said second stream, such that said third stream is also expelled from said exhaust end of said jet engine to produce a third thrust adjacent to said second thrust and thereby prevent Mach waves from said second thrust] control mechanism controls at least one of temperature and velocity of a third stream to control Mach wave formation from the second stream, the third stream being divided from the air.

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12. (Amended) The jet engine of claim [1] 25, wherein said first stream has a circular or elliptical cross section at a plane, said plane located at said exhaust end [of said jet engine].

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13. (Amended) The jet engine of claim [1] 25, wherein said first stream has a rectangular cross section at a plane located at said exhaust end [of said jet engine].

14. (Amended) A jet engine [in use propelling an aircraft at a supersonic speed together with the exhaust stream thereof, said engine] comprising:

an air intake end [and an exhaust end] to intake air, the air being divided into at least first and second streams; and

[a first passage and a second passage extending between said air intake end and said exhaust end;

a combustion chamber in fluid communication with and located along said first passage such that a portion of said first passage is disposed to receive a first flow of exhaust between said combustion chamber and said exhaust end;

said first flow of exhaust forming said supersonic exhaust stream upon exiting said engine;]

a [heating] control mechanism [in fluid communication with and located along said second passage such that a portion of said second passage is disposed to receive a second flow of exhaust between said heating mechanism and said exhaust end;

said second flow of exhaust forming a subsonic exhaust stream upon exiting said engine; and

said supersonic exhaust stream at least partially enveloped by said subsonic exhaust stream] to control at least one of temperature and velocity of at least one of the first and second streams such that the first and second streams form supersonic and subsonic streams upon exiting an exhaust end, the subsonic stream at least partially surrounding the supersonic stream.

16. (Amended) The jet engine of claim [14] 28, wherein said heating mechanism is a suppression burner, said suppression burner being designed to heat the air by burning a fuel.

17. (Amended) The jet engine of claim [14] 28, wherein said second passage substantially encloses said first passage.

18. (Amended) The jet engine of claim [14] 28, wherein said jet engine is at least partially surrounded by a shroud, said shroud defining an exterior wall of said second passage.

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19. (Amended) The jet engine of claim [1] 14, wherein said first [exhaust] stream has a circular or elliptical cross section at a plane, said plane located at said exhaust end [of said engine].

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20. (New) The jet engine of claim 1 wherein the control mechanism controls velocity of turbulent eddies of the first stream to be subsonic relative to the second stream.

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21. (New) The jet engine of claim 1 wherein the control mechanism controls velocity of turbulent eddies of the second stream to be subsonic relative to an ambient stream.

22. (New) The jet engine of claim 1 wherein the control mechanism controls the temperature of the second stream to be greater than $(B*M_1/(1+M_2))^2*T_1$, wherein B is a ratio between eddy velocity and stream velocity, M_1 is air velocity of the first stream divided by a first speed of sound in the first stream, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, and T_1 is temperature of air in the first stream.

23. (New) The jet engine of claim 1 wherein the control mechanism controls the temperature of the second stream to be less than $T_a*((1+M_a)/(B*M_2))^2$, wherein B is a ratio between eddy velocity and stream velocity, M_a is air velocity of ambient air surrounding said second stream divided by ambient speed of sound, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, and T_a is temperature of said ambient air surrounding said second stream.

24. (New) The jet engine of claim 1 wherein the control mechanism controls the temperature of the second stream to be greater than $(B*M_1/(1+M_2))^2*T_1$ and less than $T_a*((1+M_a)/(B*M_2))^2$, wherein B is a ratio between eddy velocity and stream velocity, M_1 is air velocity of the first stream divided by a first speed of sound in the first stream, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, T_1 is temperature of air in the first stream, T_a is temperature of said ambient air surrounding said second stream, and M_a is air velocity of ambient air surrounding said second stream divided by ambient speed of sound.

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25. (New) The jet engine of claim 1 further comprising:

an exhaust end having first and second sides divided by a partition to allow the first and second streams exiting on said first and second sides.

26. (New) The jet engine of claim 25 wherein the control mechanism comprises:

a combustion chamber to heat said first stream such that said first stream is expelled from said exhaust end to produce a supersonic thrust.

27. (New) The jet engine of claim 25 wherein the control mechanism comprises:

a heating mechanism to heat said second stream such that the velocity of the turbulent eddies of the second stream is subsonic relative to the ambient stream.

28. (New) The jet engine of claim 14 wherein the control mechanism comprises:

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a combustion chamber located along a first passage such that a portion of said first passage is disposed to receive a first flow between said combustion chamber and said exhaust end, the first flow forming said supersonic stream; and

a heating mechanism located along a second passage such that a portion of said second passage is disposed to receive a second flow between said heating mechanism and said exhaust end, said second flow forming the subsonic stream.

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29. (New) A method comprising:

intaking air into an intake end of a jet engine, the air being divided into at least first and second streams; and

controlling at least one of temperature and velocity of the first and second streams to control Mach wave formation from the first stream.

30. (New) The method of claim 29 wherein controlling comprises:

controlling velocity of turbulent eddies of the first stream to be subsonic relative to the second stream.

31. (New) The method of claim 29 wherein controlling comprises:

controlling velocity of turbulent eddies of the second stream to be subsonic relative to an ambient stream.

32. (New) The method of claim 29 wherein controlling comprises:

controlling the temperature of the second stream to be greater than $(B*M_1/(1+M_2))^2*T_1$, wherein B is a ratio between eddy velocity and stream velocity, M_1 is air velocity of the first stream divided by a first speed of sound in the first stream, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, and T_1 is temperature of air in the first stream.

33. (New) The method of claim 29 wherein controlling comprises:

controlling the temperature of the second stream to be less than $T_a*((1+M_a)/(B*M_2))^2$, wherein B is a ratio between eddy velocity and stream velocity, M_a is air velocity of ambient air surrounding said second stream divided by ambient speed of sound, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, and T_a is temperature of said ambient air surrounding said second stream.

34. (New) The method of claim 29 wherein controlling comprises:

controlling the temperature of the second stream to be greater than $(B*M_1/(1+M_2))^2*T_1$ and less than $T_a*((1+M_a)/(B*M_2))^2$, wherein B is a ratio between eddy velocity and stream velocity, M_1 is air velocity of the first stream divided by a first speed of sound in the first stream, M_2 is air velocity of the second stream divided by a second speed of sound in the second stream, T_1 is temperature of air in the first stream, T_a is temperature of said ambient air surrounding said second stream, and M_a is air velocity of ambient air surrounding said second stream divided by ambient speed of sound.